

# Expert Report by Mark Kantrowitz

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## Preface

This report, dated December 3, 2019, summarizes my findings and opinions formed to date in the matter of Dawson vs. Great Lakes Educational Loan Services, Inc. et al., Case No. 15-cv-475-jdp in the United States District Court for the Western District of Wisconsin. My review and analysis of the facts and circumstances of the case continues. I reserve the right to supplement and amend my opinions to take into account information learned up to and throughout the trial. I am being paid on an hourly basis for this engagement, and my billing rate is \$500 per hour, with a reduced travel rate of \$2,000 per day, and reimbursement of actual travel expenses.

My expertise concerning student loans is detailed in the section titled "Qualifications."

I have not provided any trial or deposition testimony in the last four years. My other testimony and expert witness services are included in the section titled "Qualifications."

The current exhibits to my report are two large, Microsoft Excel spreadsheets with file names GL 0095860.xlsx and GL 0095861.xlsx, respectively. These exhibits are being transmitted to the defendants' attorneys at Foley & Lardner LLP, by secure FTP, on the date of this report. These exhibits will be supplemented if necessary and as required.

## Qualifications

I am President of Cerebly, Inc. (formerly MK Consulting, Inc.), a consulting firm focused on computer science, artificial intelligence and statistical and policy analysis. Cerebly's clients have included the Advisory Committee on Student Financial Assistance (ACSFA), a committee established by Congress to advise it on student financial aid policy. Cerebly, Inc. also publishes the web site PrivateStudentLoans.guru, among several other web sites.

I am also Publisher and Vice President of Research of Saving for College LLC. Saving for College LLC publishes Savingforcollege.com, the most popular guide to planning, saving and paying for college.

Before serving as Publisher and VP of Research for Savingforcollege.com, I was Publisher and Vice President of Strategy for Cappex.com LLC from 2016 to 2017. Cappex.com is a free consumer-facing web site about college admissions and financial aid.

Before serving as Publisher and VP of Strategy for Cappex.com, I was Senior Vice President and Publisher of Edvisors Network, Inc. from 2013 to 2015. Edvisors Network, Inc. publishes several consumer-facing web sites, including Edvisors.com, ScholarshipPoints.com and PrivateStudentLoans.com.

Before serving as Senior Vice President and Publisher of Edvisors Network, Inc., I was VP of Advanced Projects for Monster Worldwide and Publisher of FinAid, Fastweb and other consumer-facing web sites owned by Monster Worldwide, from 2001 to 2013. I founded FinAid in 1994. FinAid and Fastweb merged in 2009 and were acquired by Monster Worldwide in 2001. I designed and implemented all of the calculators on the FinAid web site, including two dozen loan calculators. (Subsequent to my leaving FinAid in 2013, they removed all of the income-driven repayment calculators because they are difficult to update without the requisite expertise.)

I have also previously worked as a Research Scientist for Just Research, a Software Engineer for the MIT AI Laboratory, a Software and Digital Typography Consultant in the Advanced Development Group of Bitstream Inc., and an Assistant Programmer Analyst for the Planning Research Corporation.

I have served on the editorial board of the Journal of Student Financial Aid from 2011 to the present. I served on the editorial board of the Council on Law in Higher Education from 2004 to 2011. I was a member of the board of directors of the National Scholarship Providers Association from 2009 to 2015 and am still a member of the research and advocacy committees.

I discovered the early repayment status loophole, which allowed millions of students to consolidate their federal student loans while they were still in school in May 2005, saving them billions of dollars of interest over the life of their loans.

I was involved in the design of income-based repayment (IBR) and public service loan forgiveness, which were enacted by Congress as part of the College Cost Reduction and Access Act of 2007 [P.L. 110-84]. In particular, I developed a parametrized calculator that allowed policymakers to explore various options in the design of these repayment plans. I was nominated for the Above & Beyond Citizen Honors of the Congressional Medal of Honor Society for this work in 2008, and named the Pennsylvania Finalist.

I reported on the possibility of a contagion effect from the subprime mortgage credit crisis to student loans in early 2007, long before most people recognized the existence of the subprime mortgage credit crisis. I began tracking lenders leaving federal and non-federal student loan programs in July 2007 and started publishing a list of loan program exits and lender layoffs in August 2007.<sup>1</sup> I published a white paper, [Solving the Student Loan Credit Crunch](#), in March 2008 and [testified](#) before the Senate Banking Committee in April 2008, leading to passage of the Ensuring Continued Access to Student Loans Act of 2008 [P.L. 110-227]. This helped avert a complete meltdown of the student loan industry.

I was the first to report that student loan debt outstanding had exceeded credit card debt for the first time in 2010, auto loan debt in 2011 and reached the \$1 trillion mark in 2012.

I have been quoted in more than 10,000 newspaper and magazine articles and have written for the *New York Times*, *Wall Street Journal*, *Washington Post*, *Reuters*, *Huffington Post*, *U.S. News & World Report*, *Money Magazine*, *Bottom Line/Personal*, *Forbes*, *Newsweek* and *Time Magazine*. I was named a Money Hero by *Money Magazine* in 2012. I served as the curator for the Student Loans Topics Page for the *New York Times* from 2009 to 2010. I served as the Student Loan Guru for FiLife.com, a Dow Jones/IAC property, from 2008 to 2010. I have served on the editorial advisory board of various Boardroom Inc. publications, such as *Bottom Line/Personal* and *Bottom Line/Wealth*, from 2008 to the present. I am a Quora Top Writer with more than 1 million answer views on Quora.

I am the author of five bestselling books about student financial aid, including *How to Appeal for More College Financial Aid*, *Twisdoms about Paying for College*, *Filing the FAFSA* and *Secrets to Winning a Scholarship*. Two of these books won Excellence in Financial Literacy Education (EIFLE) Awards from the Institute for Financial Literacy. I have written for numerous puzzle magazines, including *Games Magazine*, and have written two books of word puzzles, *Laddergrams Galore* and *More Laddergrams*.

I hold seven patents involving novel statistical methods and their applications, including patents for spelling and grammar correction, affect analysis, language identification, plagiarism detection, statistical

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<sup>1</sup> <http://www.finaid.org/loans/lenderlayoffs.phtml>

text summarization and optimizing the scheduling of diagnostic tests for cancer screening and post-treatment follow-up. A patent application about improving the effectiveness of investment glide paths is still pending.

I have testified before Congress, federal/state agencies and national professional organizations about student loan debt on several occasions, including:

- *Trends in Student Loan Debt*, Keynote Address, NAGTRI/SABA Bankruptcy Seminar, National Association of Attorneys General (NAAG), November 14, 2017.
- *Pay Me Now or Pay Me Later*, College Savings Plan Network Conference, National Association of State Treasurers (NAST), May 13, 2015.
- *The Challenge of Rising Student Loan Debt*, California Student Aid Commission, Symposium on Student Debt, November 14, 2014.
- U.S. Senate Committee on Banking, Housing and Urban Affairs, hearing entitled *Turmoil in U.S. Credit Markets: Impact on the Cost and Availability of Student Loans*, April 15, 2008. My testimony and white paper lead to passage of the Ensuring Continued Access to Student Loans Act of 2008 (P.L. 110-227 and 110-359).

I have written more than 100 student aid policy analysis papers (available at [www.studentaidpolicy.com](http://www.studentaidpolicy.com)), including several about student loans, such as:

- *Student Loan Debt Causes Delays in Achieving Major Financial Goals*, June 28, 2019.
- *Growth in student loan debt at graduation slows as borrowers hit loan limits*, June 29, 2018.
- *Who Graduates College with Six-Figure Student Loan Debt?*, August 1, 2012.
- *Characteristics of College Students Who Graduate with No Debt*, August 24, 2011.
- *Improving Borrower Satisfaction and Compliance by Adopting a Better Communication Strategy*, December 23, 2010.
- *Relationship of Default Rates to Debt and Income*, August 17, 2010.
- *Calculating the Contribution of Demographic Differences to Default Rates*, April 5, 2010.
- *Parent PLUS Loan Denial Rates in the FFEL and Direct Loan Programs*, August 31, 2009.
- *Characteristics of Private Student Loan Borrowers Who Do Not Use Federal Education Loans*, June 7, 2009.
- *Analysis and Evaluation of Iowa Student Loan Practices*, September 19, 2008. (Report prepared at the request of the Iowa Attorney General, Thomas J. Miller.)
- *Solving the Student Loan Credit Crunch*, March 10, 2008.
- *Impact of the Bankruptcy Exception for Private Student Loans on Private Student Loan Availability*, August 14, 2007.

I have won numerous awards, including Distinguished Speaker from the National Scholarship Providers Association (NSPA), College Financing Ace from *Investment Advisor Magazine*, Excellence in Financial Literacy Education (EIFLE) from the Institute for Financial Literacy, Money Hero from *Money Magazine*, Creative Leadership Award from the California Association of Student Financial Aid Administrators (CASFAA), Special Award from the College Board, the Jefferson Medal from the American Institute for

Public Service and a Meritorious Achievement Award from the National Association of Student Financial Aid Administrators (NASFAA).

Profiles of me written by journalists include:

- Bernice Napach, [Mark Kantrowitz: College Financing Ace — The 2016 IA 25](#), Investment Advisor Magazine, May 24, 2016.
- Steve Rosen, [Expert discusses the rising cost of college and student loan debt](#), Kansas City Star, May 29, 2015.
- Beckie Supiano, [Everybody's Go-To Methodical Mind](#), Chronicle of Higher Education, July 15, 2013.
- Jane J. Kim, [Student-Loan Gadfly Gets a Starring Role as the U.S. Pushes Out the Private Lenders](#), Wall Street Journal, July 3, 2010.

I earned two Bachelor of Science degrees from the Massachusetts Institute of Technology in 1989, one in mathematics and one in philosophy, and a Master of Science degree in computer science from Carnegie Mellon University in 1991. I am an alumnus of the Rickover Science Institute (RSI) in 1984.

## Background on Student Loans

### **Two Federal Education Loan Programs: FFELP vs. DL**

Federal education loans have been made by banks and other financial institutions through the Federal Family Education Loan Program (FFELP or FFEL Program) and the William D. Ford Federal Direct Loan Program (DL or Direct Loan Program).

The FFEL Program began in 1965 and continued until it was ended in 2010. In 1965, budget rules prevented the federal government from making loans directly to students and parents.

The Direct Loan Program was authorized by the Higher Education Amendments of 1992 and became effective starting in the 1994-95 academic year.

The two loan programs operated in parallel for 16 years. Since July 1, 2010, all new federal education loans have been made by the Direct Loan Program.

The FFEL Program and the Direct Loan Program have nearly identical loan terms, set by the Higher Education Act of 1965. (The main exception was due to legislative drafting errors that lead to different interest rates on the Federal PLUS loan from 2006-07 through 2009-10.)

FFELP loans were guaranteed against default by the federal government. The guarantees were implemented by 35 guarantee agencies, one of which was Great Lakes Higher Education Corporation. The guarantee agencies would buy title to defaulted federal student loans from the lenders that originated these loans. They would then try to collect, rehabilitate and service these loans, and seek reinsurance payments from the federal government if unsuccessful.

Originally, the Direct Loan program had a single servicer, ACS Education Services (later Xerox Education Services and now Conduent Education). In 2007, the subprime mortgage credit crisis caused a contagion

effect, where the capital markets for student loans froze, making it difficult for lenders to securitize their loan portfolios. The Ensuring Continued Access to Student Loans Act of 2008 provided these lenders with short-term financing to help avoid a complete meltdown of the student loan industry. This provided the U.S. Department of Education with the time it needed to expand the capacity of the Direct Loan program. Many former lenders and loan servicers became servicers in the Direct Loan program. The four largest servicers are Navient Corporation (formerly part of Sallie Mae), the Pennsylvania Higher Education Assistance Agency (operating as FedLoan Servicing), Nelnet Inc. and Great Lakes Education Loan Services Inc. (originally a subsidiary of Great Lakes Higher Education Corporation, now owned by Nelnet Inc.).

### **Types of Education Loans**

There are two main types of federal education loans, the Federal Stafford Loans and the Federal PLUS Loans. These loans differ according to loan limits, eligible borrowers, interest rates and fees, subsidized interest benefits and repayment plans.

The federal education loans differentiate between undergraduate and graduate student borrowers, dependent and independent student borrowers, and parent borrowers. The loan terms may also differ according to the borrower's year in school. For example, the annual loan limits for dependent student undergraduate borrowers of the Federal Stafford Loan are \$5,500 for freshmen, \$6,500 for sophomores, \$7,500 for juniors and \$7,500 for seniors.

Eligibility for Federal Stafford Loans does not depend on the borrower's credit history, credit scores, income, debt-to-income ratios or other forms of credit underwriting.

Eligibility for Federal PLUS Loans requires the borrower to not have an adverse credit history. An adverse credit history evaluates whether the borrower previously experienced certain derogatory credit events, such as (1) a serious delinquency, collections or charge-off on more than \$2,085 in debt in the last two years or (2) a bankruptcy discharge, foreclosure, repossession, tax lien, wage garnishment or default determination within the last five years. It does not consider credit scores, minimum income thresholds, debt-to-income ratios or other metrics that evaluate the borrower's future ability to repay the debt.

### **Simple Interest**

Federal student loans charge simple interest, as opposed to compound interest. *See, e.g.*, 34 CFR 682.202 (titled "Permissible charges by lenders to borrowers," governing FFELP Loans); 34 CFR 685.202 (titled "Charges for which Direct Loan Program borrowers are responsible," governing Direct Loans). With simple interest, interest is charged only on the principal balance of the loan. With compound interest, interest is charged on both the unpaid principal balance of the loan and any accrued but unpaid interest.

For a federal student loan to charge interest on interest, the interest has to be capitalized, by adding it to the principal balance of the loan.

### **Deferments and Forbearances: Impact on Capitalization of Interest**

Deferments and forbearances are temporary suspensions of the obligation to repay a debt.

During a deferment, the federal government pays the interest on any subsidized loans, such as the subsidized Federal Stafford Loan. The borrower remains responsible for the interest on unsubsidized loans, such as the unsubsidized Federal Stafford Loan and the Federal PLUS Loan. If the borrower does not pay the interest as it accrues, it will be capitalized by adding it to the principal balance, typically at the end of the deferment period.

During a forbearance, the borrower is responsible for the interest on all loans, including subsidized loans. Again, if the borrower does not pay the interest as it accrues, the interest will often be capitalized, typically at the end of the forbearance period.

Normally, accrued but unpaid interest is capitalized at the end of a forbearance period. However, the so-called B-9 forbearances (described in 34 CFR 682.211(f)(11) and 34 CFR 685.205(b)(9)), standing alone, do not allow for the capitalization of interest. I understand that this regulatory conclusion is currently undisputed in this litigation.

### **Relevance to this Report**

This report concerns a class action lawsuit in which the defendants are federal student loan servicers of the FFEL Program and the Direct Loan Program subject to servicing contracts with the U.S. Department of Education and private FFELP lenders.

The lawsuit alleges that the defendants capitalized accrued unpaid interest following F-11 and B-9 60-day administrative forbearances, during which the servicer processes borrower documentation and applications for deferments, forbearances, changes in repayment plans and consolidation loans.

I have been retained to assist with providing the above, general background information to the jury regarding the nature of federal student loans, forbearances and deferments, and interest capitalization, and also to assess the financial damages incurred by borrowers as a result of these allegedly improper interest capitalizations. I have been asked to provide a reasonable estimate of the financial impact of the allegedly improper interest capitalizations. I have arrived at a reasonable estimate that is a slight underestimate of the actual financial impact, but also easy to understand.

## **Analysis of Impact of Capitalization of Student Loan Interest**

### **Formula for Estimating Capitalization Impact**

When accrued interest is capitalized, the principal balance is increased by the amount of capitalized interest. Interest starts being charged on the capitalized interest in addition to the original principal balance, increasing the interest that is charged to the borrower. The extra interest increases the total cost of the loan to the borrower.

The regulations at 34 CFR 682.209(b) and 34 CFR 685.211(a) specify that payments are applied first to accrued charges and collection costs, then to any outstanding interest and then to outstanding principal.

Accordingly, payments will generally pay the extra interest before applying the remainder to principal. This means that an increase in the payment amount applied to interest will result in a corresponding decrease in the payment amount applied to principal, in effect substituting principal balance reductions with reductions of the interest charged on the capitalized interest. For amortization purposes, this has the same effect as capitalizing the compound interest.

If the monthly payment is re-amortized due to the extra capitalized interest, this will yield a higher monthly payment proportional to this formula, where B is the loan balance prior to capitalization and IC AMT is the amount of interest that was capitalized. Monthly loan payments are proportional to the loan balance, so this formula is based on the ratio of the two loan balances, with and without the extra capitalized interest.

$$\frac{B + IC\ AMT}{B}$$

The monthly loan payment is weighted by the previous formula to yield the new, re-amortized loan payment.

$$P \times \frac{B + IC\ AMT}{B}$$

One would then need to calculate the net present value of the series of payments. If N is the number of payments, P is the original monthly payment and D is the discount rate, the net present value is described by this equation, where the re-amortized loan payment is discounted by the discount rate using a standard formula for calculating the net present value. Since the payments are constant, the discount rate multiples form a geometric series, which can be summed using methods typically taught in secondary school mathematics.<sup>2</sup>

$$\sum_{i=1}^N P \times \frac{B + IC\ AMT}{B} \times \frac{1}{D^i} = P \times \frac{B + IC\ AMT}{B} \times \frac{1 - D^N}{1 - D}$$

The change in the net present value is described by this equation, which subtracts the net present value for the original monthly loan payments from the net present value for the re-amortized monthly loan payments and simplifies the result.

$$P \times \frac{B + IC\ AMT}{B} \times \frac{1 - D^N}{1 - D} - P \times \frac{1 - D^N}{1 - D} = P \times \frac{IC\ AMT}{B} \times \frac{1 - D^N}{1 - D}$$

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<sup>2</sup> George B. Thomas, Jr. and Ross L. Finney, *Calculus and Analytic Geometry*, Fifth Edition, March 1980, Pages 754-755



This is a fairly complicated equation that depends critically on the discount rate. One could simplify it by ignoring the discount rate, which would replace the last part of the equation (after the equals sign) with

$$P \times \frac{IC\ AMT}{B} \times N$$

A **much simpler and mathematically reasonable approach** is to assume that there is no compounding of the capitalization. This will underestimate the overcharges to the borrower from the wrongful capitalization of interest. It is a reasonable and easy to calculate approximation of the overcharges to the borrower from the wrongful capitalization of interest.

Assume that IC AMT is the is the amount of interest that was wrongfully capitalized, R is the annual interest rate on the account and N is the number of days during which the wrongfully capitalized amount was included in the borrower's principal balance, for which interest was charged on the capitalized amount. Then, the total overcharges to the borrower are described by this equation.

$$IC\ AMT \times \frac{R}{365} \times N$$

This formula is used in this report to calculate the estimate of the overcharges to the borrower using the spreadsheets of student loan data described below. It provides a likely lower bound on the actual amount overpaid by or overcharged to the borrower.

### **Other Factors and Data Not Considered**

Although this formula provides a reasonable estimate of the ultimate "capitalization impact" on borrowers in this case, there are several other factors not considered by the simple formula that could yield higher or lower impact numbers.

For example, one factor not considered that could potentially *reduce* the ultimate "capitalization impact" on borrowers includes any subsidized interest payments made on the borrower's behalf.

Factors not considered that could potentially *increase* the ultimate "capitalization impact" on borrowers includes the additional financial impact resulting from any later, legitimate capitalizations that would have compounded interest obligations that should never have existed in the first place.

If a borrower's monthly payment was re-amortized due to the new, fully capitalized principal, this would also yield a higher monthly payment than the borrower would otherwise have been required to pay out-of-pocket. The ultimate financial impact of this might be estimable by calculating the net present value of any increase in the monthly payment amount, as detailed above.

While consideration of the above three factors might theoretically yield a more perfect "capitalization impact" calculation, including them in the analysis would make only a minimal difference in the capitalization impact calculation for two reasons:

- First, the factors not considered are at least partially offsetting of each other, with one tending to reduce, and two tending to increase the overall impact on borrowers; and
- Second, even taken individually, these other factors would likely have only a marginal effect on the overall impact calculation.

With respect to interest subsidies, FSA reports that less than 19% of their FFELP and Direct Loan portfolio (by dollar loan volume) consists of loans that are eligible for interest subsidies.<sup>3</sup> For those loans that are eligible for interest subsidies, subsidies are not applied throughout the life of the loan, but instead, are predominantly applied during periods of in-school deferment.

Interest subsidies may apply in other limited contexts, such as during an economic hardship deferment and during the start of certain income-driven repayment plans. Economic hardship deferments are limited to three years. The federal government pays the accrued but unpaid interest on subsidized loans during the first three years of certain income-driven repayment (IDR) plans.

Such interest subsidies (where they existed) would be unlikely to reduce the total capitalization impact on class borrowers by any more than a marginal amount.

With respect to any subsequent capitalizations, the *increasing* impact from those would be only a marginal increase relative to the original capitalization impact because:

- It would accrue over a shorter time period, and
- It would be the function of a capitalization amount that would usually be substantially less than the original capitalization amount, especially considering the typical duration subsequent to the allegedly improper capitalization is less than four years.

With respect to the net present value calculation, this too would present only a marginal *increase* in class capitalization impact because it would merely be a function of inflation. The inflation rate, based on the Consumer Price Index (CPI-U) ranged from 0.1% to 2.4% during the affected time period. This is a relatively small percentage.

Given the relatively small impact of these three other factors (taken individually), as well as their tendencies to offset each other in the aggregate, I do not believe that including these other, more detailed factors in my model would yield any more than a marginal difference in the financial impact on borrowers in this case.

### **Spreadsheets of Student Loan Data**

I received a 405 mb compressed Zip file, "Native Files.zip", by secure FTP on November 6, 2019, and reviewed it shortly thereafter. The Zip file contained two very large Microsoft Excel spreadsheets named GL 0095860.xlsx and GL 0095861.xlsx. These spreadsheets were purportedly produced by Great Lakes on October 25, 2019. The spreadsheets, which were redacted to remove Social Security Numbers, have file properties that include an author of "Tammy Kielhofer" and a company of "Great Lakes".

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<sup>3</sup> See <https://studentaid.ed.gov/sa/about/data-center/student/portfolio> (last visited December 1, 2019).

I understand that, when combined, the two spreadsheets create a single list of B-9 Forbearance (34 CFR 682.211(f)(11) and 34 CFR 685.205(b)(9)) capitalization transactions during the class period of January 1, 2006 to the present, and that each row contains a single capitalization transaction.

Sheet1 of the GL 0095860.xlsx spreadsheet contains 1 million rows, consisting of one row of headers and 999,999 rows of data.

Sheet1 of the GL 0095861.xlsx spreadsheet contains 975,590 rows, consisting of one row of headers and 975,589 rows of data.

The header rows for the two spreadsheets are identical.

Microsoft Excel files are limited to 1,048,576 rows. So, one must analyze the two spreadsheets separately and then combine the results. Otherwise, the two spreadsheets, if combined, would contain 1,975,588 rows of data.

### **Analysis of Student Loan Data**

The following columns from the spreadsheets, identified by the text in the header row for the column, are relevant to my analysis based on my understanding of the following headers:

- TOKEN. This is Great Lakes' student loan ID number.
- IC DATE. This is the capitalization date, namely the date the interest was capitalized.
- IC AMT. This is the capitalization amount, namely the amount of interest that was capitalized on IC DATE.
- IC RATE. This is the student loan interest rate for the given TOKEN. Some rows do not have a value in this column. For those rows, I substituted the interest rate from the INT CAP column.
- VALID CAP. I analyzed only those rows with a value of "N" in the VALID CAP column. I ignored the rows with a value of "Y" in the VALID CAP column.
- CAP GONE. The rows for which IC RATE is missing have CAP GONE set to "Y". If CAP GONE is Y, I use an end date of 1/1/2016, otherwise 1/1/2018.

The capitalization removal dates 1/1/2016 and 1/1/2018 were selected based on Great Lakes' court filings concerning the first and second remediation projects that spanned October 2015 through July 2016 and August 2017 through August 2018, respectively, (*See, e.g.*, Declaration of Tammy Kielhofer dated July 15, 2016, Declaration of Tammy Kielhofer dated June 12, 2018, and Declaration of Bridget Lapham dated September 11, 2018). The midpoints of these "remediation" periods are approximately February 2016 and February 2018, respectively. I subtracted a month to conservatively estimate the dates on which the relevant capitalization amounts were (according to Great Lakes) removed from borrowers' principal balances.<sup>4</sup>

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<sup>4</sup> It is my understanding that during this litigation, the plaintiff class requested that Great Lakes provide the exact capitalization removal dates for each of their affected loans, but that Great Lakes did not provide the requested dates. In any event, the exact capitalization removal dates for each affected loan were not provided to me, so I

I wrote numerous Microsoft Excel functions to analyze the data in these spreadsheets. No data in the original spreadsheets was modified. Instead, the analysis was implemented through supplemental functions such as database functions (DMIN, DMAX, DAVERAGE, DCOUNT, DCOUNTA, DSUM, SUM, COUNTIF, MINIFS, MAXIFS), supplemental columns of data analysis, and histogram analysis tools. The TRIM function was also used because some data elements were padded with white space.

An example of Microsoft Excel code used to implement the formula is:

=IF(TRIM(U2)="N",IF(I2>0,I2\*AE2/365\*AG2,0),0)

In this example, U2 is the second row of the VALID CAP column, I2 is the second row of the IC AMT column, AE2 is the second row of a new column that is based on the second row of the IC RATE column with substitution of the second row of the INT CAP column if the IC RATE value is blank, AG2 is the second row of a new column that calculates the number of days between IC DATE and the end date. The end date appears in the second row of a new column, AF, based on T2 which is the second row of the CAP GONE column.

I ran code like this on every row of both spreadsheets (note that it naturally limits itself to rows where VALID CAP is N) and summed the “capitalization impact” estimates in each row to arrive at my reasonable estimate of the total financial impact upon the borrowers from the relevant interest capitalizations, ultimately yielding the aggregate estimate of **\$28,771,315.92**.

Sheet1 of the GL 0095860.xlsx spreadsheet contains 424,669 rows with VALID CAP equal to N and 575,330 rows with VALID CAP equal to Y. Only the rows with VALID CAP equal to N, and with non-negative IC AMTs, were considered in this analysis. (See “Capitalized Interest Anomalies,” below.)

Sheet1 of the GL 0095861.xlsx spreadsheet contains 418,276 rows with VALID CAP equal to N and 557,313 rows with VALID CAP equal to Y. Only the rows with VALID CAP equal to N, and with non-negative IC AMTs, were considered in this analysis. (See “Capitalized Interest Anomalies,” below.)

Sheet1 of the GL 0095860.xlsx spreadsheet contains 28,751 rows with a blank IC RATE and with VALID CAP equal to N. In these rows, INT CAP was substituted for the blank IC RATE. Of these rows, 23,348 have CAP GONE equal to Y.

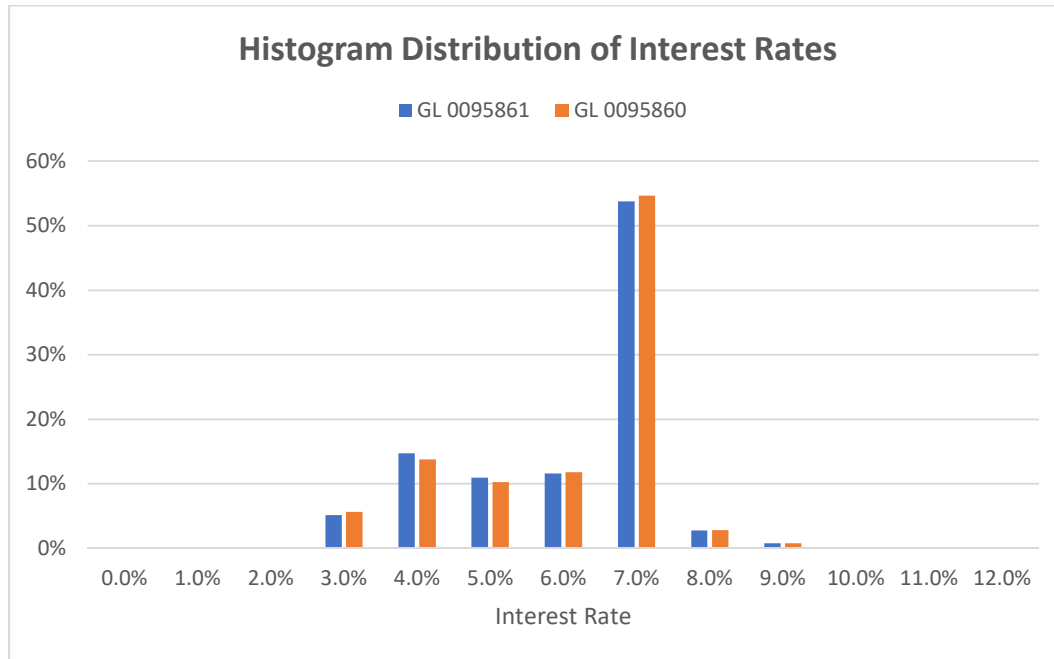
Sheet1 of the GL 0095861.xlsx spreadsheet contains 31,254 rows with a blank IC RATE and with VALID CAP equal to N. In these rows, INT CAP was substituted for the blank IC RATE. Of these rows, 26,132 have CAP GONE equal to Y.

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applied the *estimated* capitalization removal dates to each loan, as described above, based upon the information made available to me in the Declarations of Tammy Kielhofer and Bridget Lapham.

### Interest Rate Anomalies

In Sheet1 of both spreadsheets, IC RATE ranges from 0.1% to 12.0%, with an average of 5.7%. This bar chart shows a histogram of the distribution of the interest rates in the IC RATE column. The bars at 7.0% show the percentage of the interest rates greater than 6.0% and less than or equal to 7.0%.



Based on my above-stated experience in the federal student loan industry, the following are the interest rates that have historically been applicable to FFELP and Direct Loans. The statutory basis for these interest rates is the Higher Education Act of 1965 [20 USC 1077a, 20 USC 1087e(b)]. The regulatory basis for these interest rates is 34 CFR 682.202 and 34 CFR 685.202.

- The statutory interest rates on Federal Stafford Loans were fixed rates that ranged from 3.4% to 6.8% from 2006-07 to the present. Prior to then, Federal Stafford Loans had variable interest rates which, if consolidated, ranged from 2.875% to 8.25% from 1992-93 to 2005-06.
- The GSL, a predecessor to the Federal Stafford Loan, had fixed interest rates of 7% to 9% through 1987-88 and variable rates with a 10% cap from 1988-89 through September 30, 1992.
- The statutory interest rates on Federal PLUS Loans were fixed rates that ranged from 6.3% to 8.5% from 2006-07 to the present. Prior to then, Federal PLUS Loans had variable interest rates which, if consolidated, ranged from 4.25% to 8.25% (reduced from 8.99% due to consolidation) from 1992-93 to 2005-06.
- The SLS, a predecessor to the Federal PLUS Loan, had fixed rates of 9% to 14% through 1986-87 and variable rates with an 11% cap from 1987-88 through September 30, 1992.
- Most variable rate federal loans were consolidated within a few months of entering repayment. Consolidation rounded up the interest rate to the nearest 1/8<sup>th</sup> of a percentage point and, in some cases, capped the interest rate at 8.25%.

- Even if not consolidated, the interest rates on variable-rate Federal Stafford Loans had caps of 8.25% or 9.00% and the interest rates on variable-rate Federal PLUS Loans had caps of 9.00% or 10.00%.

Thus, the existence of interest rates below 2.875% in the student loan data appears to be anomalous. Sheet1 of the GL 0095860.xlsx spreadsheet has 54,008 rows with IC RATE below 2.875%. Sheet1 of the GL 0095861.xlsx spreadsheet has 48,116 rows with IC RATE below 2.875%.

It is possible that the lender had discounted the statutory interest rates for some borrowers. The most common discounts offered by various lenders included:

- **Auto-debit discount.** 0.25% or 0.50% percentage point interest rate reduction for borrowers who signed up for auto-debit, where monthly loan payments were automatically transferred from the borrower's bank account to the lender, possibly with a requirement for electronic billing
- **Prompt payment discount.** 2.0% percentage point interest rate reduction for borrowers who made the first 36 consecutive payments on time, for as long as they continued to make the payments on time.

Nevertheless, this does not explain the rows of data with IC RATE of 0.1% or 0.0%.

It is possible that the 54,008 and 48,116 rows of data in the two spreadsheets with IC RATE less than 2.875% have interest rates that are erroneously low.

In particular, Sheet1 of the GL 0095860.xlsx spreadsheet has 38 rows with interest rates under 1.0% and Sheet1 of the GL 0095861.xlsx spreadsheet has 27 rows with interest rates under 1.0%.

It is also possible that the two spreadsheets have some rows with interest rates that are too high, although the statutory rates were as high as 14% for very old loans.

In particular, Sheet1 of the GL 0095860.xlsx spreadsheet has 3,525 rows with interest rates over 8.25% and 151 with interest rates over 8.5%. Sheet1 of the GL 0095861.xlsx spreadsheet has 3,472 rows with interest rates over 8.25% and 279 with interest rates over 8.5%.

I have taken all of these potentially anomalous interest rates at face value when evaluating the impact of capitalized interest and later on estimate the potential increase in the capitalized interest if the interest rates are inaccurately low.

### Capitalized Interest Anomalies

Sheet1 of the GL 0095860.xlsx spreadsheet has IC AMT that ranges from -\$161.13 to \$68,830.27, with an average of \$121.83. These figures were filtered for VALID CAP equal to N.

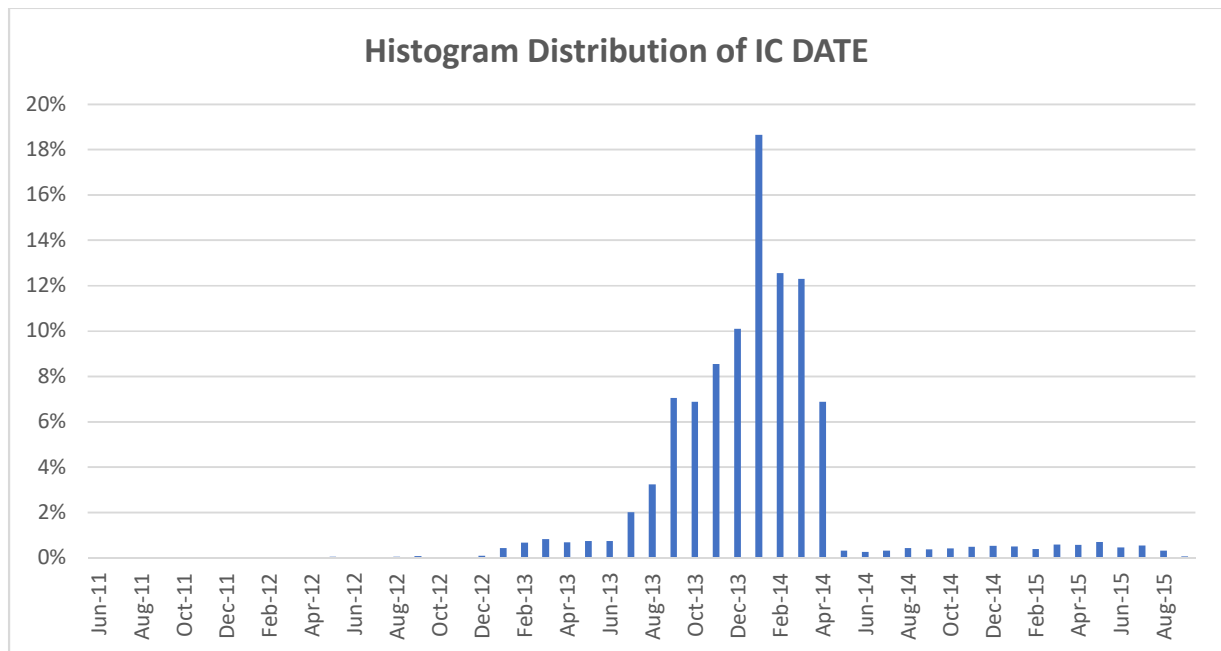
Sheet1 of the GL 0095861.xlsx spreadsheet has IC AMT that ranges from -\$158.48 to \$149,066.66, with an average of \$147.77. These figures were filtered for VALID CAP equal to N.

The negative amounts are anomalies. Upon further investigation, Sheet1 of the GL 0095860.xlsx spreadsheet has 14 negative figures for IC AMT, totaling -\$633.52, and Sheet1 of the GL 0095861.xlsx spreadsheet has two negative figures for IC AMT, totaling -\$208.92. These figures were filtered for VALID CAP equal to N.

To address these anomalies, IC AMT has been set to zero for these 16 anomalies.

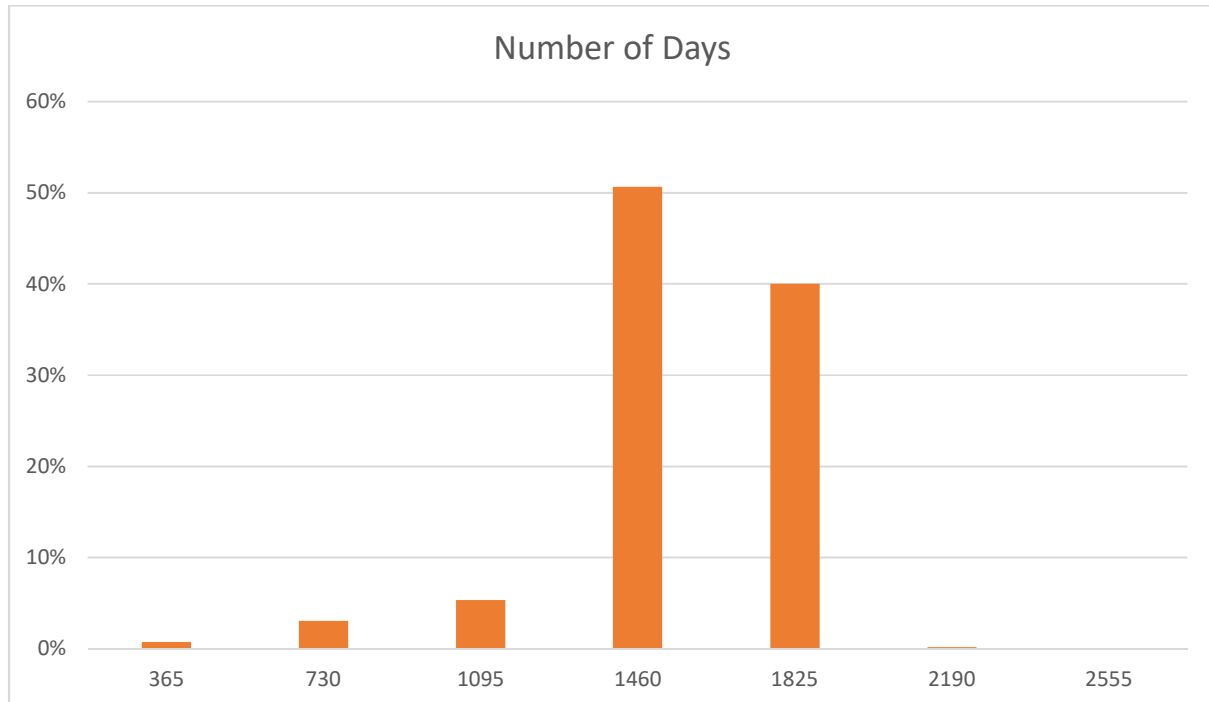
### Capitalization Date

This chart shows the distribution of IC DATE for the two spreadsheets, combined, for the rows with VALID CAP equal to N. 92% of the rows have IC DATE between March 2013 and May 2014, inclusive. The range of dates across the two spreadsheets, combined, for VALID CAP equal to N is 5/22/2011 to 9/6/2015.



### Number of Days of Interest Charged on the Capitalized Interest

The end date for calculating the interest charged on the capitalized interest was set at January 1, 2016 if CAP GONE equals Y, otherwise it was set at January 1, 2018. The number of days for which the capitalization was accruing interest is equal to the end date minus the IC DATE.



### **Adjustment for Low Interest Rates**

As previously noted, Sheet1 of the GL 0095860.xlsx spreadsheet has 54,008 rows with IC RATE below 2.875% and Sheet1 of the GL 0095861.xlsx spreadsheet has 48,116 rows with IC RATE below 2.875%.

Given that 2.875% is the lowest statutory interest rate on federal education loans in the last three decades, it is possible that the stated interest rates in the spreadsheets are erroneously low.

If so, it is worthwhile to estimate the impact of correcting the low interest rates. (Note that the previous analysis took the interest rates at face value.)

The average interest rate for rows with an interest rate under 2.875% is 2.32% for Sheet1 of the GL 0095860.xlsx spreadsheet and 2.30% for Sheet1 of the GL 0095861.xlsx spreadsheet.

The average IC AMT for those rows is \$84.86 and \$90.04, respectively.

The average number of days for each is 1,468.

As explained above, the lowest historical interest rate for FFELP and Direct Loans was 2.875%. If I ballpark the impact of rounding up the low rates to a floor rate of 2.875%, the increase in interest overcharges per affected loan is \$1.89 and \$2.08, respectively. That yields aggregate increases of \$102,302.75 and \$100,190.38, respectively, and a combined total of \$202,493.13. When added to my aggregate estimate of \$28,771,315.92 (which takes all interest rates in the spreadsheets at face value), this would yield an adjusted, estimated capitalization impact of **\$28,973,809.05**.



As explained above, the average annual interest rate in the spreadsheets provided to me is 5.7%. If I ballpark the impact of rounding up the low rates to the average interest rate of 5.7%, the increase in interest overcharges per affected loan is \$11.54 and \$12.31, respectively. That yields aggregate increases of \$623,042.95 and \$592,430.09, respectively, and a combined total of \$1,215,473.04. When added to my aggregate estimate of \$28,771,315.92 (which takes all interest rates in the spreadsheets at face value), this would yield an adjusted, estimated capitalization impact of **\$29,986,788.96**.

All of the above opinions and analysis are stated to a reasonable degree of professional certainty.

A handwritten signature in black ink, appearing to read 'Mark Kantrowitz', with a large, stylized flourish extending from the end of the signature.

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Mark Kantrowitz, President, Cerebly Inc.